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8/15/05

**Amendments to the Specification.**

(in page 8, lines 6-16) wf

Please replace paragraph ~~[0028]~~ with the following paragraph:

~~[0028]~~ Referring to FIGS. 2a and 2b there are shown top and side views of a magnetic memory cell 200. In a first embodiment, the cell ~~200~~ represents a memory cell in magnetic storage media such as a hard disk drive. In a second embodiment, the structure ~~200~~ represents an MRAM cell. The magnetic memory cell ~~200~~ comprises a first magnetic layer 202 and a second magnetic layer 204. The first layer 202 has a thickness $t_1$ and the second layer 204 has a thickness $t_2$. The first and second magnetic layers are weakly coupled via a nonmagnetic layer 206. In the media embodiment $t_1$ substantially equals $t_2$. By "substantially" we mean close enough to equal such that the switching characteristics discussed herein are present. In the MRAM embodiment $t_1$ is substantially ~~greater~~ less than $t_2$. An example of a substantial difference in thickness is where ~~$t_1$~~ $t_2$ is 2 to 6 times ~~$t_2$~~ $t_1$. In an embodiment, the nonmagnetic spacer layer 206 comprises a dusting layer 205 for reducing the coupling between layers 202 and 204.

(in page 8, Lines 17-26) wf

Please replace paragraph ~~[0029]~~ with the following paragraph:

~~[0029]~~ The free layer of a media cell ~~200~~ is replaced by two magnetic layers 202 and 204 which are weakly parallel coupled together via a nonmagnetic layer 206. The magnetic coupling is

strong enough so that the magnetic fields of the two layers are parallel (P) in a zero field condition (i.e., absence of an external magnetic field) but weak enough that during switching of the magnetic field direction the layers are not parallel, and ideally become antiparallel (AP). The nonmagnetic layer is said to exchange couple the two magnetic layers 202 and 204 together. Such exchange coupled sandwiches are very well known. However known technological applications of such coupling have only been used where the coupling is large and AP. According to the invention small and P coupling is desired.

in page 12, lines 6-24 wt

Please replace paragraph ~~[0044]~~ with the following paragraph:

~~[0044]~~ Referring again to FIGS. 2a and 2b, there are shown top and side views of an MRAM cell 200 wherein first and second magnetic layers (202 and 204) coupled to each other via a nonmagnetic layer 206 have different thicknesses ($t_1$ and $t_2$). In this case layer 202 is a thin layer and layer ~~206~~ 204 is the thick layer. The reason that the case where $t_1 = t_2$ cannot be used for MRAM is that, while $E_a$ is large, the associated astroid does not have the right shape, as shown in FIG. 3. By making $t_2 > t_1$ the astroid shape changes to a new type of shape which provides much better switching characteristics than the astroid shape used in the prior art. This astroid shape (herein called the AVAP astroid 402) is shown in FIG. 4, along with the Stoner-Wohlfarth astroid 404. The points each shown as an x (406-410) represent the Stoner-Wohlfarth characteristic. The round points (412-416) represent the AVAP characteristic. The AVAP astroid 402 shape has more curvature than the Stoner-Wohlfarth astroid 404. This allows the half select

fields to be made smaller (relative to the tips of the astroid along the easy and hard axes) while still leaving the full select field outside of the astroid boundary. The smaller half select fields in turn produce a larger $E_a$. Therefore AVAP provides two distinct benefits: (1) Ea is larger in zero field and (2) smaller half select fields are used (relative to the tips of the astroid along the easy and hard axes), thus $E_a$ is reduced less than in the Stoner-Wohlfarth case. Both of these factors reduce the SER.